Public Employees Retirement Association of Minnesota

Public Employees Police and Fire Plan
GASB Statements No. 67 and No. 68 Accounting and Financial Reporting for Pensions
June 30, 2020

| P: 800.521.0498 | www.grsconsulting.com

November 13, 2020

Public Employees Retirement Association of Minnesota
Public Employees Police and Fire Plan
St. Paul, Minnesota

Dear Trustees of the Public Employees Police and Fire Plan:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 for the Public Employees Police and Fire Plan ("PEPFP"), as amended by Statement No. 82. These calculations have been made on a basis that is consistent with our understanding of these accounting standards.

GASB Statement No. 67 is the accounting standard that applies to the financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust. GASB Statement No. 82 is an amendment to Statements No. 67, No. 68, and No. 73, intended to improve consistency in the application of the accounting standards.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statements No. 67 and No. 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligations. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. The calculation of the plan's liability for this report may not be applicable for purposes of funding the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statements No. 67 and No. 68 may produce significantly different results. The information in this report is calculated on a total plan basis. PERA is responsible for preparing the Schedule of Employer Allocations and the Schedule of Pension Amounts by Employer. This report may be provided to parties other than the Public Employees Retirement Association (PERA) only in its entirety and only with the permission of PERA. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by PERA, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If your understanding of this information is different, please let us know. This information was checked for internal consistency, but it was not audited.

This report complements the actuarial valuation report for funding purposes that was or will be provided to the Plan and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2020 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

277 Coon Rapids Boulevard | Suite 212 | Coon Rapids, Minnesota 55433-2629

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the Public Employees Police and Fire Plan as of the measurement date. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

This report does not fully reflect the recent and still developing impact of COVID-19, which is likely to influence demographic and investment experience, at least in the short term. We will continue to monitor these developments and their impact on the plan.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Brian B. Murphy and Bonita J. Wurst are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Brian B Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD

Bonita J. Wurst

Bonita J. Wurst, ASA, EA, FCA, MAAA

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2020 (Dollars in Thousands)

		2020
Actuarial Valuation Date		June 30, 2020
Measurement Date of the Net Pension Liability		June 30, 2020
Employer's Fiscal Year Ending Date (Reporting Date)		Varies by Employer
Membership		
Number of		
- Service Retirements		7,793
- Survivors		1,931
- Disability Retirements		1,477
- Deferred Retirements		1,686
- Terminated other non-vested		894
- Active Members		12,025
- Total		25,806
Covered Payroll	$	1,069,481
Net Pension Liability		
Total Pension Liability	$	10,291,567
Plan Fiduciary Net Position	$	8,973,460
Net Pension Liability	$	1,318,107
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		87.19%
Net Pension Liability as a Percentage of Covered Payroll		123.25%
Development of the Single Discount Rate		
Single Discount Rate		7.50%
Long-Term Expected Rate of Investment Return		7.50%
Long-Term Municipal Bond Rate*		2.45%
Last year ending June 30 in the 2021 to 2120 projection period for which projected benefit payments are fully funded		2120
Total Pension Expense/ (Income)	**$**	**155,130**

Deferred Outflows and Inflows by Source Arising from Current and Prior Periods to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 58,243	$ 62,595
Changes in assumptions	$ 441,725	$ 822,055
Net difference between projected and actual earnings on pension plan investments	$ 238,850	$ 198,812
Total	$ 738,818	$ 1,083,462

* *Source: Based on the 20-Year Municipal GO Index of mixed maturity general obligation municipal bonds as of the weekly rate closest to but not later than the Measurement Date.*

Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans* establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68, *Accounting and Financial Reporting for Pensions* establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements. Governmental Accounting Standards Board (GASB) Statement No. 82, *Pension Issues*, is an amendment to Statements No. 67, No. 68, and No. 73, intended to improve consistency in the application of the accounting standards.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state and local governmental employers to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to PEPFP subsequent to the measurement date of June 30, 2020.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a Statement of Fiduciary Net Position and a Statement of Changes in Fiduciary Net Position in accordance with GASB Statement No. 67. The Statement of Fiduciary Net Position presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The Statement of Changes in Fiduciary Net Position presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Notes to Financial Statements

GASB Statement No. 68 requires the notes to the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

Both GASB Statements No. 67 and No. 68 require the notes to the financial statements for the employers and pension plans to include certain descriptive information about the pension plans through which the pension benefits are provided. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The classes of employees and number of members covered by the pension plan;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The pension plan's investment policies;
- The pension plan's fiduciary net position, net pension liability, and the pension plan's fiduciary net position as a percentage of the total pension liability;
- The net pension liability using a discount rate that is 1% higher and 1% lower than the current discount rate used to calculate the total pension liability and net pension liability for financial reporting purposes;
- Significant assumptions and methods used to calculate the total pension liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- The composition of the pension plan's Board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Required Supplementary Information

Statement No. 67 requires a 10-year fiscal history of:

- Sources of changes in the net pension liability;
- Information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- Comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For employer reporting, the net pension liability and pension expense should be measured as of a date (measurement date) no earlier than the end of the employer's prior fiscal year, consistently applied from period to period. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2020 and a measurement date of June 30, 2020.

Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.50%), then the following outcomes are expected:

1. The normal cost of the plan is expected to remain approximately level as a percent of pay,
2. The funded status of the plan is expected to gradually improve and is expected to be 100% funded within the next 28 years, and
3. The unfunded liability will grow initially as a dollar amount before beginning to decline.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the market value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

(1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.

(2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

(3) The measurement would produce a different result if the actuarial value of assets were used instead of the market value of assets.

Limitation of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a single discount rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the long-term expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 2.45% (based on the weekly rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index") and the resulting single discount rate is 7.50%.

SECTION B

FINANCIAL STATEMENTS

Statement of Pension Expense under GASB Statement No. 68
Fiscal Year Ended June 30, 2020 (Dollars in Thousands)

A. Expense		
1. Service Cost	$	217,127
2. Interest on the Total Pension Liability	$	729,945
3. Current-Period Benefit Changes	$	-
4. Employee Contributions (made negative for addition here)	$	(123,525)
5. Projected Earnings on Plan Investments (made negative for addition here)	$	(654,340)
6. Pension Plan Administrative Expense	$	924
7. Other Changes in Plan Fiduciary Net Position	$	(260)
8. Recognition of Outflow (Inflow) of Resources due to differences between expected and actual experience in the measurement of the Total Pension Liability		
Arising from Current Reporting Period	$	5,058
9. Recognition of Outflow (Inflow) of Resources due to assumption changes		
Arising from Current Reporting Period	$	(4,131)
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected (7.50%) and actual earnings on Pension Plan Investments		
Arising from Current Reporting Period	$	57,078
11. **Increase/(Decrease) from Experience in the Current Reporting Period**	**$**	**227,876**
12. Recognition of Outflow (Inflow) of Resources due to differences between expected and actual experience in the measurement of the Total Pension Liability		
Arising from Prior Reporting Periods	$	(87,198)
13. Recognition of Outflow (Inflow) of Resources due to assumption changes		
Arising from Prior Reporting Periods	$	47,907
14. Recognition of Outflow (Inflow) of Resources due to the difference between projected and actual earnings on Pension Plan Investments		
Arising from Prior Reporting Periods	$	(33,455)
15. Total Pension Expense / (Income)	**$**	**155,130**

Recognition of Deferred Outflows and Inflows of Resources

Differences between expected and actual experience and changes in assumptions are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pension through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the current measurement period, the expected remaining service lives of all active employees in the plan was approximately 153,560 years. Additionally, the total plan membership (active employees and inactive employees) was 25,559. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the current measurement period is 6.00 years.

Additionally, differences between projected and actual earnings on plan investments should be recognized in pension expense using a systematic and rational method over a closed five-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

Statement of Outflows and Inflows Arising from Current Reporting Period
Fiscal Year Ended June 30, 2020 (Dollars in Thousands)

A. Outflows (Inflows) of Resources due to Liabilities		
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	$	30,348
2. Assumption Changes (gains) or losses	$	(24,785)
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		6.0000
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	$	5,058
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$	(4,131)
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities		927
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	$	25,290
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$	(20,654)
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities		4,636
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses		285,391
2. Recognition period for Assets {in years}		5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets		57,078
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets		228,313

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2020 (Dollars in Thousands)

A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 459,033	$ 497,397	$ (38,364)
2. Due to Assets	176,581	152,958	23,623
3. Total	$ 635,614	$ 650,355	$ (14,741)

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 17,308	$ 99,448	$ (82,140)
2. Assumption Changes	441,725	397,949	43,776
3. Net Difference between projected and actual earnings on pension plan investments	176,581	152,958	23,623
4. Total	$ 635,614	$ 650,355	$ (14,741)

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ 58,243	$ 62,595	$ (4,352)
2. Assumption Changes	441,725	822,055	(380,330)
3. Net Difference between projected and actual earnings on pension plan investments	238,850	198,812	40,038
4. Total	$ 738,818	$ 1,083,462	$ (344,644)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2021	$ (93,877)
2022	(365,902)
2023	57,102
2024	57,105
2025	928
Thereafter	0
Total	$ (344,644)

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2020 (Dollars in Thousands)

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) Due to Differences Between Expected and Actual Experience on Liabilities					
2015	$ (221,112)	6.0000	$ (36,852)	$ 0	0.0000
2016	(375,575)	6.0000	(62,596)	(62,595)	1.0000
2017	37,292	6.0000	6,215	12,432	2.0000
2018	21,720	6.0000	3,620	10,860	3.0000
2019	14,491	6.0000	2,415	9,661	4.0000
2020	30,348	6.0000	5,058	25,290	5.0000
Total			**$ (82,140)**	**$ (4,352)**	
Deferred Outflow (Inflow) Due to Assumption Changes					
2016	$ 2,650,350	6.0000	$ 441,725	$ 441,725	1.0000
2017	(2,300,201)	6.0000	(383,367)	(766,733)	2.0000
2018	(42,807)	6.0000	(7,135)	(21,402)	3.0000
2019	(19,898)	6.0000	(3,316)	(13,266)	4.0000
2020	(24,785)	6.0000	(4,131)	(20,654)	5.0000
Total			**$ 43,776**	**$ (380,330)**	
Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments					
2016	$ 579,951	5.0000	$ 115,991	$ 0	0.0000
2017	(535,516)	5.0000	(107,103)	(107,104)	1.0000
2018	(229,273)	5.0000	(45,855)	(91,708)	2.0000
2019	17,561	5.0000	3,512	10,537	3.0000
2020	285,391	5.0000	57,078	228,313	4.0000
Total			**$ 23,623**	**$ 40,038**	
Deferred Outflow (Inflow) due to All Sources					
Total			**$ (14,741)**	**$ (344,644)**	

Statement of Fiduciary Net Position
(Dollars in Thousands)

	Market Value			
Assets in Trust	**June 30, 2020**		**June 30, 2019**	
Cash, Equivalents, Short Term Securities	$ 389,655		$ 246,498	
Fixed Income	$ 1,826,327		$ 1,798,789	
Equity	$ 5,347,942		$ 5,499,553	
SBI Alternative	$ 1,402,246		$ 1,286,444	
Other	$ -		$ -	
Total Assets in Trust	**$ 8,966,170**		**$ 8,831,284**	
Assets Receivable	$ 13,148	*	$ 19,164	*
Amounts Payable	$ 5,858		$ (5,896)	
Net Position Restricted for Pensions	**$ 8,973,460**		**$ 8,844,552**	

** Includes $7.679 million contribution receivable from Minneapolis to be paid July 15.*

Statement of Changes in Fiduciary Net Position
(Dollars in Thousands)

Change in Assets		**Market Value**	
Year Ending		**June 30, 2020**	**June 30, 2019**
1.	Fund balance at market value at beginning of year	$ 8,844,552	$ 8,486,907
2.	Contributions		
	a. Member	$ 123,525	$ 111,762
	b. Employer	$ 193,819 *	$ 174,817 *
	c. Other sources	$ 13,500	$ 13,500
	d. Total contributions	$ 330,844	$ 300,079
3.	Investment income		
	a. Investment income/(loss)	$ 377,183	$ 617,935
	b. Investment expenses	$ (8,234)	$ (8,423)
	c. Net subtotal	$ 368,949	$ 609,512
4.	Other	$ 260	$ 54
5.	**Total additions:** *(2.d.) + (3.c.) + (4.)*	**$ 700,053**	**$ 909,645**
6.	Benefits Paid		
	a. Annuity benefits	$ (567,040)	$ (547,699)
	b. Refunds	$ (3,181)	$ (3,283)
	c. Total benefits paid	$ (570,221)	$ (550,982)
7.	Expenses		
	a. Other	$ -	$ -
	b. Administrative	$ (924)	$ (1,018)
	c. Total expenses	$ (924)	$ (1,018)
8.	**Total deductions:** *(6.c.) + (7.c.)*	**$ (571,145)**	**$ (552,000)**
9.	Net increase (decrease) in net position: *(5) + (8)*	$ 128,908	$ 357,645
10.	**Net position restricted for pensions**	**$ 8,973,460**	**$ 8,844,552**
11.	Approximate return on market value of assets	4.2%	7.3%

** Includes $7.679 million contribution receivable from Minneapolis to be paid July 15.*

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios
Current Period
Fiscal Year Ended June 30, 2020 (Dollars in Thousands)

A. Total pension liability		
1. Service cost	$	217,127
2. Interest on the total pension liability	$	729,945
3. Changes of benefit terms	$	-
4. Difference between expected and actual experience of the total pension liability	$	30,348
5. Changes of assumptions	$	(24,785)
6. Benefit payments, including refunds of employee contributions	$	(570,221)
7. Net change in total pension liability	$	382,414
8. Total pension liability – beginning	$	9,909,153
9. Total pension liability – ending	**$**	**10,291,567**
B. Plan fiduciary net position		
1. Contributions – employer	$	207,319
2. Contributions – employee	$	123,525
3. Net investment income	$	368,949
4. Benefit payments, including refunds of employee contributions	$	(570,221)
5. Pension Plan Administrative Expense	$	(924)
6. Other	$	260
7. Net change in plan fiduciary net position	$	128,908
8. Plan fiduciary net position – beginning	$	8,844,552
9. Plan fiduciary net position – ending	**$**	**8,973,460**
C. Net pension liability	**$**	**1,318,107**
D. Plan fiduciary net position as a percentage of the total pension liability		**87.19%**
E. Covered-employee payroll*	**$**	**1,069,481**
F. Net pension liability as a percentage of covered-employee payroll		**123.25%**

**Assumed equal to actual member contributions divided by employee contribution rate.*

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios Multiyear
(Dollars in Thousands)

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending June 30,	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total Pension Liability										
Service Cost	$ 217,127	$ 209,098	$ 203,131	$ 318,401	$ 194,352	$ 187,959	$ 169,124			
Interest on the Total Pension Liability	$ 729,945	$ 703,640	$ 682,903	$ 616,740	$ 658,198	$ 648,233	$ 598,165			
Benefit Changes	$ -	$ -	$ (50,771)	$ -	$ -	$ -	$ -			
Difference between Expected and Actual Experience	$ 30,348	$ 14,491	$ 21,720	$ 37,292	$ (375,575)	$ (221,112)	$ 1,813			
Assumption Changes	$ (24,785)	$ (19,898)	$ (42,807)	$ (2,300,201)	$ 2,650,350	$ -	$ 323,945			
Benefit Payments	$ (567,040)	$ (547,699)	$ (528,468)	$ (512,379)	$ (498,608)	$ (481,330)	$ (452,462)			
Refunds	$ (3,181)	$ (3,283)	$ (1,902)	$ (2,119)	$ (2,391)	$ (1,953)	$ (1,633)			
Net Change in Total Pension Liability	$ 382,414	$ 356,349	$ 283,806	$ (1,842,266)	$ 2,626,326	$ 131,797	$ 638,952			
Total Pension Liability - Beginning	$ 9,909,153	$ 9,552,804	$ 9,268,998	$ 11,111,264	$ 8,484,938	$ 8,353,141	$ 7,714,189			
Total Pension Liability - Ending (a)	$ 10,291,567	$ 9,909,153	$ 9,552,804	$ 9,268,998	$ 11,111,264	$ 8,484,938	$ 8,353,141			
Plan Fiduciary Net Position										
Employer Contributions	$ 207,319	$ 188,317	$ 179,781	$ 175,329	$ 165,065	$ 153,317	$ 141,632			
Employee Contributions	$ 123,525	$ 111,762	$ 105,479	$ 101,984	$ 95,172	$ 88,733	$ 81,213			
Pension Plan Net Investment Income	$ 368,949	$ 609,512	$ 813,966	$ 1,058,942	$ (8,949)	$ 317,556	$ 1,158,389			
Benefit Payments	$ (567,040)	$ (547,699)	$ (528,468)	$ (512,379)	$ (498,608)	$ (481,330)	$ (452,462)			
Refunds	$ (3,181)	$ (3,283)	$ (1,902)	$ (2,119)	$ (2,391)	$ (1,953)	$ (1,633)			
Pension Plan Administrative Expense	$ (924)	$ (1,018)	$ (886)	$ (992)	$ (906)	$ (803)	$ (798)			
Other	$ 260	$ 54	$ 58	$ 24	$ 3	$ 84	$ 18			
Net Change in Plan Fiduciary Net Position	$ 128,908	$ 357,645	$ 568,028	$ 820,789	$ (250,614)	$ 75,604	$ 926,359			
Plan Fiduciary Net Position - Beginning	$ 8,844,552	$ 8,486,907	$ 7,918,879	$ 7,098,090	$ 7,348,704	$ 7,273,100	$ 6,346,741			
Plan Fiduciary Net Position - Ending (b)	$ 8,973,460	$ 8,844,552	$ 8,486,907	$ 7,918,879	$ 7,098,090	$ 7,348,704	$ 7,273,100			
Net Pension Liability - Ending (a) - (b)	$ 1,318,107	$ 1,064,601	$ 1,065,897	$ 1,350,119	$ 4,013,174	$ 1,136,234	$ 1,080,041			
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	87.19 %	89.26 %	88.84 %	85.43 %	63.88 %	86.61 %	87.07 %			
Covered Employee Payroll	$ 1,069,481	$ 1,011,421	$ 976,657	$ 944,296	$ 881,222	$ 845,076	$ 820,333			
Net Pension Liability as a Percentage of Covered Employee Payroll	123.25 %	105.26 %	109.14 %	142.98 %	455.41 %	134.45 %	131.66 %			

Notes to Schedule:

N/A

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability Multiyear
(Dollars in Thousands)

Last 10 Fiscal Years (which may be built prospectively)

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2011						
2012						
2013						
2014	$ 8,353,141	$ 7,273,100	$ 1,080,041	87.07%	$ 820,333	131.66%
2015	$ 8,484,938	$ 7,348,704	$ 1,136,234	86.61%	$ 845,076	134.45%
2016	$ 11,111,264	$ 7,098,090	$ 4,013,174	63.88%	$ 881,222	455.41%
2017	$ 9,268,998	$ 7,918,879	$ 1,350,119	85.43%	$ 944,296	142.98%
2018	$ 9,552,804	$ 8,486,907	$ 1,065,897	88.84%	$ 976,657	109.14%
2019	$ 9,909,153	$ 8,844,552	$ 1,064,601	89.26%	$ 1,011,421	105.26%
2020	$ 10,291,567	$ 8,973,460	$ 1,318,107	87.19%	$ 1,069,481	123.25%

Schedule of Contributions Multiyear
(Dollars in Thousands)

Last 10 Fiscal Years

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2011	$ 124,284	$ 109,604	$ 14,680	$ 775,806	14.13%
2012	$ 152,369	$ 121,891	$ 30,478	$ 794,417	15.34
2013	$ 189,254	$ 125,995	$ 63,259	$ 796,188	15.82
2014	$ 163,985	$ 141,632	$ 22,353	$ 820,333	17.27
2015	$ 197,325	$ 153,317	$ 44,008	$ 845,076	18.14
2016	$ 189,375	$ 165,065	$ 24,310	$ 881,222	18.73
2017	$ 165,252	$ 175,329	$ (10,077)	$ 944,296	18.57
2018	$ 193,183	$ 179,781	$ 13,402	$ 976,657	18.41
2019	$ 173,459	$ 188,317	$ (14,858)	$ 1,011,421	18.62
2020	$ 177,855	$ 207,319	$ (29,464)	$ 1,069,481	19.39

Notes to Schedule of Contributions

Methods and Assumptions Used to Determine Contribution Rates for Fiscal Year Ending June 30, 2020:

Valuation Date	June 30, 2019
Notes	Actuarially determined contribution rates are calculated as of each June 30 and apply to the fiscal year beginning on the day after the measurement date.
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	29 years
Asset Valuation Method	5-Year smoothed market; no corridor
Inflation	2.50%
Payroll Growth	3.25%
Salary Increases	3.25% to 12.25% including inflation
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2017 valuation pursuant to an experience study of the period 2011 - 2015.
Mortality	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2018, from a base year of 2006. Male rates adjusted by a factor of 0.96.

Other Information:

Notes	The plan is assumed to pay a 1.00% post retirement benefit increase for all future years. See separate funding report as of July 1, 2019 for additional detail.

Schedule of Investment Returns Multiyear

Last 10 Fiscal Years

FY Ending June 30,	Annual Return[1]
2011	
2012	
2013	
2014	
2015	
2016	
2017	
2018	
2019	
2020	

[1] *Annual money-weighted rate of return, net of investment expenses.*

It is our understanding that this exhibit will be prepared by PERA with assistance from the State Board of Investment. Please provide a copy of the final exhibit for our files.

SECTION D

ADDITIONAL FINANCIAL STATEMENT DISCLOSURES

Asset Allocation

Long-Term Expected Return on Plan Assets

The long-term expected rate of return on pension plan investments was determined using a building-block method. Estimates for expected future real rates of return (expected returns, net of inflation) were developed for each asset class using both long-term historical returns and long-term capital market expectation from a number of investment management and consulting organizations. The asset class estimates and the target allocations were then combined to produce a geometric, long-term expected rate of return for the portfolio. Inflation expectations were applied to derive the nominal rate of return for the portfolio. For each major asset class that is included in the pension fund's target asset allocation as of June 30, 2020, these estimates are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (geometric)
Domestic Equity	36%	5.10%
International Equity	17%	5.30%
Private Markets	25%	5.90%
Fixed Income	20%	0.75%
Unallocated Cash	2%	0.00%
Total	100%	

The Minnesota State Board of Investment (SBI) compiled this data and the related investment notes and provided it to PERA for GASB compliance purposes. PERA furnished this information to us for inclusion within this report. We did not audit this information. We are not responsible for its accuracy or completeness.

For purposes of this valuation, the long-term expected rate of return assumption is 7.50%. This assumption is based on reviews of inflation and investment return assumptions in our experience study report for the General Employees Retirement Plan dated June 27, 2019.

Single Discount Rate

A single discount rate of 7.50% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.50% and the municipal bond rate of 2.45%. The projection of cash flows used to determine this single discount rate assumed that plan member and employer contributions will be made at the current statutory rates. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's net pension liability, calculated using a single discount rate of 7.50%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

(Dollars in Thousands)

	1% Decrease 6.50%	Current Single Discount Rate Assumption 7.50%	1% Increase 8.50%
Total Pension Liability	$ 11,600,637	$ 10,291,567	$ 9,208,541
Net Position Restricted for Pensions	$ 8,973,460	$ 8,973,460	$ 8,973,460
Net Pension Liability	**$ 2,627,177**	**$ 1,318,107**	**$ 235,081**

Note that we believe the 8.5% interest rate assumption would not comply with Actuarial Standards of Practice.

GASB Statement No. 68 Reconciliation (Dollars in Thousands)
Current Reporting Period

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	Current Period: Deferred Outflows	Current Period: Deferred Inflows	Current Period: Pension Expense*
Balance Beginning of Year	**$ 9,909,153**	**$ 8,844,552**	**$ 1,064,601**			
Changes for the Year:						
Service Cost	$ 217,127		$ 217,127			$ 217,127
Interest on Total Pension Liability	$ 729,945		$ 729,945			$ 729,945
Interest on Fiduciary Net Position		$ 654,340	$ (654,340)			$ (654,340)
Changes in Benefit Terms	$ -		$ -			$ -
Liability Experience Gains and Losses	$ 30,348		$ 30,348	$ 25,290	$ -	$ 5,058
Changes in Assumptions	$ (24,785)		$ (24,785)	$ -	$ 20,654	$ (4,131)
Contributions - Employer		$ 207,319	$ (207,319)			
Contributions - Employees		$ 123,525	$ (123,525)			$ (123,525)
Asset Gain/(Loss)		$ (285,391)	$ 285,391	$ 228,313	$ -	$ 57,078
Benefit Payouts	$ (570,221)	$ (570,221)				
Administrative Expenses		$ (924)	$ 924			$ 924
Other		$ 260	$ (260)			$ (260)
Net Changes	**$ 382,414**	**$ 128,908**	**$ 253,506**	**$ 253,603**	**$ 20,654**	**$ 227,876**
Balance End of Year	**$ 10,291,567**	**$ 8,973,460**	**$ 1,318,107**			

** Pension Expense from Experience in the Current Reporting Period.*

GASB Statement No. 68 Reconciliation (Dollars in Thousands)
Current and Prior Reporting Periods

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	Deferred Outflows	Deferred Inflows	Net Deferred Outflows Prior Year	Total Pension Expense*
Balance Beginning of Year	**$ 9,909,153**	**$ 8,844,552**	**$ 1,064,601**				
Changes for the Year:							
Service Cost	$ 217,127		$ 217,127				$ 217,127
Interest on Total Pension Liability	$ 729,945		$ 729,945				$ 729,945
Interest on Fiduciary Net Position		$ 654,340	$ (654,340)				$ (654,340)
Changes in Benefit Terms	$ -		$ -				$ -
Liability Experience Gains and Losses	$ 30,348		$ 30,348	$ 58,243	$ 62,595	$ (116,840)	$ (82,140)
Changes in Assumptions	$ (24,785)		$ (24,785)	$ 441,725	$ 822,055	$ (311,769)	$ 43,776
Contributions - Employer		$ 207,319	$ (207,319)				
Contributions - Employees		$ 123,525	$ (123,525)				$ (123,525)
Asset Gain/(Loss)		$ (285,391)	$ 285,391	$ 238,850	$ 198,812	$ (221,730)	$ 23,623
Benefit Payouts	$ (570,221)	$ (570,221)					
Administrative Expenses		$ (924)	$ 924				$ 924
Other		$ 260	$ (260)				$ (260)
Net Changes	**$ 382,414**	**$ 128,908**	**$ 253,506**				**$ 155,130**
Balance End of Year	**$ 10,291,567**	**$ 8,973,460**	**$ 1,318,107**	**$ 738,818**	**$ 1,083,462**	**$ (650,339)**	

** Pension Expense from Experience in the Current and Prior Reporting Period.*

Summary of Population Statistics

		Terminated		Recipients			
	Actives	Deferred Retirement	Other Non-Vested	Service Retirement	Disability Retirement	Survivor	Total
Members on 7/1/2019	**11,763**	**1,620**	**1,145**	**7,718**	**1,413**	**1,900**	**25,559**
New members	782						782
Return to active	61	(28)	(32)	0	(1)	0	0
Terminated non-vested	(80)	0	80	0	0	0	0
Service retirements	(178)	(84)	0	262	0	0	0
Terminated deferred	(189)	189	0	0	0	0	0
Terminated refund/transfer	(40)	(24)	(190)	0	0	0	(254)
Deaths	(10)	(4)	(4)	(188)	(36)	(106)	(348)
New beneficiary	0	0	0	0	0	143	143
Disabled	(84)	0	0	0	84	0	0
Data adjustments	0	17	(105)	1	17	(6)	(76)
Net change	262	66	(251)	75	64	31	247
Members on 6/30/2020	**12,025**	**1,686**	**894**	**7,793**	**1,477**	**1,931**	**25,806**

SECTION E

SUMMARY OF BENEFITS

Summary of Plan Provisions – Police & Fire Plan

Following is a summary of the major plan provisions used in the valuation of this report. PERA is solely responsible for the validity, accuracy and comprehensiveness of this information. If any of the plan provisions shown below are not accurate and complete, the valuation results may differ significantly from those shown in this report and may require a revision of this report.

Plan year	July 1 through June 30.
Eligibility	All full-time and certain part-time police officers and fire fighters, and certain paramedics, who are not contributing to any other local retirement fund.
Contributions	**Effective as of** / **Member** / **Employer** / **Total** Prior to January 1, 2019: 10.80% / 16.20% / 27.00% January 1, 2019: 11.30% / 16.95% / 28.25% January 1, 2020 and later: 11.80% / 17.70% / 29.50% Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).
State contributions	\$9 million paid annually on October 1 until both PERA P&F and MSRS State Patrol become 90% funded (on an actuarial value of assets basis), or July 1, 2048, if earlier. In addition, \$4.5 million in fiscal years 2019 and 2020, and \$9.0 million thereafter, until the plan reaches 100% funding on an actuarial value of assets basis, or July 1, 2048, if earlier.
Allowable service	Police and Fire service during which member contributions were made. May also include certain leaves of absence and military service.
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leaves and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.
Average salary	Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.

Summary of Plan Provisions – Police & Fire Plan (Continued)

Vesting		Vesting Percent if First Hired		
	Years of Service	Before 7/1/2010	After 6/30/2010 & before 7/1/2014	After 6/30/2014
	<3	0%	0%	0%
	3 – 4	100	0	0
	5	100	50	0
	6	100	60	0
	7	100	70	0
	8	100	80	0
	9	100	90	0
	10	100	100	50
	11	100	100	55
	12	100	100	60
	13	100	100	65
	14	100	100	70
	15	100	100	75
	16	100	100	80
	17	100	100	85
	18	100	100	90
	19	100	100	95
	20+	100	100	100

Summary of Plan Provisions – Police & Fire Plan (Continued)

Retirement	
Normal retirement benefit	
Age/service requirement	Age 55 and at least partially vested. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
Amount	3.00% of Average Salary for each year of Allowable Service (up to 33 years if hired after June 30, 2014), pro-rata for completed months, adjusted for partial vesting if applicable. A pro-rata share of member contributions will be refunded at retirement for excess service.
Early retirement	
Age/service requirement	Age 50 and at least partially vested.
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date and 0.10% (0.20% for members enrolled in the plan after June 30, 2007) reduction for each month the member is under age 55. If the effective date of retirement is after June 30, 2019, the reduction is 5/12% for each month that the member is under age 55 at the time of retirement. The change in early retirement factors will be phased in over a five-year period for retirements occurring between July 1, 2014 and June 30, 2019.
Form of payment	Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are: 25%, 50%, 75% or 100% Joint and Survivor with bounce back feature. The Joint and Survivor options are determined on an actuarially equivalent basis, but with no actuarial reduction for the bounce back feature.
Benefit Increases	Benefit recipients receive 1.00% increases each year in January. A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase. For retirements after May 31, 2014, the first increase will be delayed two years. Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of $25 times each full year of Allowable Service or the difference between $400 times each full year of Allowable Service and the sum of benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the Fund. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

Summary of Plan Provisions – Police & Fire Plan (Continued)

Disability

Duty disability benefit

Age/service requirement	Physically or mentally unable to perform normal duties as a police officer or fire fighter as a direct result of an act of duty specific to protecting property and personal safety of others. Members age 55 or older with 20 or more years of Allowable Service are not eligible to apply for duty disability benefits.
Amount	60.0%, plus an additional 3.00% for each year of service in excess of 20 years, of Average Salary paid until Normal Retirement Age, or for 60 months, whichever is later. The retirement benefit is then recalculated but is never lower than the disability benefit. If a member became disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in post-retirement interest rates from 5.00% to 6.00%.

Regular disability benefit

Age/service requirement	Physically or mentally unable to perform normal duties as a police officer or fire fighter with one year of Allowable Service. Members age 55 or older with 15 or more years of Allowable Service are not eligible to apply for regular disability benefits.
Amount	45.00% of Average Salary, paid until Normal Retirement Age, or for 60 months, whichever is later. The retirement benefit is then recalculated but is never lower than the disability benefit. Benefits for total and permanent regular disability are calculated as 3.00% of Average Salary for each year of Allowable Service, with a minimum of 45.00% of Average Salary. If a member became disabled prior to July 1, 1997 but did not commence his or her benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement.

Retirement benefit

Age/service requirement	Upon cessation of disability benefits.
Amount	Any optional annuity continues. Otherwise, the larger of the disability benefit paid before age 55 or the normal retirement benefit available at age 55, or an actuarially equivalent optional annuity.
Form of payment	Same as for retirement.
Benefit increases	Same as for retirement.

Summary of Plan Provisions – Police & Fire Plan (Continued)

Death

<u>Surviving spouse benefit</u>

Age/service requirement	Death of active member or regular disabled member with surviving spouse whose disability benefit accrued before July 1, 2007, who is vested at death (service requirement is waived if death occurs in the line of duty).
Amount	50.00% of salary (60.00% if death occurs in the line of duty after June 30, 2007) averaged over last six months. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991. If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement.

<u>Surviving dependent children's benefit</u>

Age/service requirement	Non-duty related death of active member or regular disabled member with eligible dependent child.
Amount	10.00% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 50.00% of salary and maximum of 70.00% of salary. Benefits paid until child marries, dies, or attains age 18 (age 23 if full-time student).

<u>Duty disability surviving spouse benefit</u>

Age/service requirement	Member who is totally and permanently disabled who dies before age 55 or within five years of the effective date of the disability benefit, whichever is later.
Amount	60.00% of salary averaged over last six months. Benefits paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.
Benefit increases	Same as for retirement.

Summary of Plan Provisions – Police & Fire Plan (Continued)

Death (Concluded)

Duty disability surviving dependent children's benefit

Age/service requirement	Death of a member with an eligible dependent child who was disabled in the line of duty and died as a direct result of the disability.
Amount	10.00% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 60.00% of salary and maximum of 80.00% of salary. Benefits paid until child marries, dies, or attains age 18 (age 23 if full-time student). If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Surviving spouse optional annuity

Age/service requirement	Active member dies before age 55. Benefits commence when member would have been age 55 or as early as age 50 if qualified for early retirement, benefits commence immediately if member had 30 years of service.
Amount	Survivor's payment of the 100% joint and survivor benefit the member could have elected if terminated. Alternatively, spouse may elect refund of deceased's contributions with interest if there are no dependent children. If a member died prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Benefit increases	Same as for retirement.

Summary of Plan Provisions – Police & Fire Plan (Continued)

Termination	
<u>Refund of contributions</u>	
Age/service requirement	Termination of public service.
Amount	Member's contributions with 6.00% interest through June 30, 2011. Beginning July 1, 2011, a member's contributions increase at 4.00% interest. Beginning July 1, 2018, a member's contributions increase at 3.00% interest. If a member is vested, a deferred annuity may be elected in lieu of a refund.
<u>Deferred benefit</u>	
Age/service requirement	Partially or fully vested.
Amount	Benefit computed under law in effect at termination and increased by the following percentage (augmentation) compounded annually for terminations prior to 2012: (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012; (d.) 5.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of the date the annuity begins and January 1, 2012; (e.) 1.00% from January 1, 2012 through December 31, 2018; and (f.) 0.00% from January 1, 2019, thereafter. Members who terminate after 2011 will receive no future augmentation. If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997 and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Form of payment	Same as for retirement.
Actuarial equivalent factors	Effective July 1, 2019, actuarially equivalent factors based on the RP-2014 mortality table for healthy annuitants for a member turning age 55 in 2021, reflecting projected mortality improvements using Scale MP-2017, male rates multiplied by 0.96, blended 90% males, and 6.50% interest.

Summary of Plan Provisions – Police & Fire Plan (Concluded)

Combined service annuity	Members are eligible for combined service benefits if they: (a.) Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or (b.) Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010). Other requirements for combined service include: (a.) Member must have at least six months of allowable service credit in each plan worked under; and (b.) Member may not be in receipt of a benefit from another plan. Members who meet the above requirements must have their benefits based on the following: (a.) Allowable service in all covered plans is combined in order to determine eligibility for early retirement. (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.
Changes in plan provisions	There have been no changes in plan provisions since the prior valuation.

Summary of Plan Provisions – Minneapolis Police Relief Association

Normal retirement benefit	Monthly benefits are equal to the number of units multiplied by the unit values described herein. Units are based on service, as follows: **Service** / **Units** 20 — 35.0 units 21 — 36.6 units 22 — 38.2 units 23 — 39.8 units 24 — 41.4 units 25 or more — 43.0 units Members must be at least age 50 with 5 years of service to receive this benefit.
Unit values	**Calendar Year** / **Unit Value** 2012 — $ 104.651 2013 — 109.011 2014 — 114.825 2015 — 124.031 Unit values after 2015 are assumed to increase the same percentage as the post-retirement benefit increase.
Surviving spouse's benefit	Annual benefit based on 23 units for the surviving spouse of an active or retired member. Upon retirement, members may choose an alternative form of payment that provides 50%, 75%, or 100% of their benefit to their spouse after their death. The units are adjusted if one of these alternate forms is selected.
Surviving children's benefit	Annual benefit based on 8 units for each surviving child of an active or retired member. Benefits continue to age 18 or if the child is a full-time student, to age 22. The total benefit for surviving children and spouse combined is limited to 41 units.
Contributions	Member and employer contributions equal to 8.00% of the monthly unit value multiplied by 80 are required for each member. After 25 years of service, member contributions are paid to a separate health insurance account. Until July 15, 2018, the employer contributed annually an amount to amortize the unfunded liability by December 31, 2031. Beginning July 15, 2019, the employer will contribute $4,489,837 each July 15 through 2031.
Benefit increases	Benefit recipients receive 1.00% increases each year in January.

Summary of Plan Provisions – Minneapolis Firefighters' Relief Association

Normal retirement benefit	Monthly benefits are equal to the number of units multiplied by the unit values described herein. Units are based on service, as follows:

Service	Units
15	25.0 units
16	26.6 units
17	28.2 units
18	29.8 units
19	31.4 units
20	35.0 units
21	36.6 units
22	38.2 units
23	39.8 units
24	41.4 units
25 or more	43.0 units

Members must be at least age 50 with 5 years of service to receive this benefit.

Members may choose among alternative survivor payment forms which modify the number of units payable to the member and their spouse. A member who is single at the time of retirement and who has at least 25 years of service may choose to receive 43.3 units on the condition of a reduced survivor payment to any future spouse.

Unit values

Calendar Year	Unit Value
2013	100.775
2014	104.264
2015	124.031

Unit values after 2015 are assumed to increase the same percentage as the post-retirement benefit increase.

Disability benefit	Annual benefit based on 41 units for the disabled member.
Surviving spouse's benefit	Annual benefit based on 23 units for the surviving spouse of an active or retired member and 22 units for the surviving spouse of a disabled member. Upon retirement, members may choose an alternative form of payment that provides 50%, 75% or 100% of their benefit to their spouse after their death. The units are adjusted if one of these alternate forms is selected.
Surviving children's benefit	Annual benefit based on 8 units for each surviving child of an active or retired member. Benefits continue to age 18 or if the child is a full-time student, to age 22. The total benefit for surviving children and spouse combined is limited to 43 units.
Contributions	Member and employer contributions equal to 8.00% of the monthly unit value multiplied by 80 are required for each member. After 25 years of service, member contributions are paid to a separate health insurance account. Until July 15, 2018, the employer contributed annually an amount to amortize the unfunded liability by December 31, 2031. Beginning July 15, 2019, the employer will contribute $3,188,735 each July 15 through 2031.
Benefit increases	Benefit recipients receive 1.00% increases each year in January.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS USED FOR THE DETERMINATION OF TOTAL PENSION LIABILITY AND RELATED VALUES

Actuarial Methods Used for the Determination of Total Pension Liability and Related Values

Actuarial Cost Method

Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

(i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and

(ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gains/(losses), as they occur, reduce (increase) the Total Pension Liability.

Asset Valuation Method

Fair value of assets.

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the plan. The assumptions are based on the last experience study dated August 30, 2016, and a review of inflation and investment assumptions in the experience study report for the General Employees Retirement Plan dated June 27, 2019.

The Allowance for Combined Service Annuity assumptions are based on an analysis completed by the LCPR actuary and documented in a report dated October 2016.

Investment return	7.50% per annum.
Single Discount Rate	7.50% per annum.
Salary increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.
Inflation	2.50% per year.
Payroll growth	3.25% per year.
Mortality rates	
Healthy pre-retirement	RP-2014 employee generational mortality table projected with mortality improvement scale MP-2019, from a base year of 2006.
Healthy post-retirement	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2019 from a base year of 2006. Male rates are adjusted by a factor of 0.96.
Disabled	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2019 from a base year of 2006. Male rates are adjusted by a factor of 0.96.
Notes	The RP-2014 employee mortality table as published by the Society of Actuaries (SOA) contains mortality rates for ages 18 to 80 and the annuitant mortality table contains mortality rates for ages 50 to 120. We have extended the annuitant mortality table as needed for members and beneficiaries younger than age 50 who are receiving a benefit by deriving rates based on the employee table and the juvenile table. Similarly, we have extended the employee table as needed for members older than age 80 by deriving rates based on the annuitant table.
Retirement	Members retiring from active status are assumed to retire according to the age related rates shown in the rate table. Members who have attained the highest assumed retirement age are assumed to retire in one year. Note that plan changes reflected in this report may ultimately result in behavior changes that are not anticipated in the current retirement rates.
Withdrawal	Select and Ultimate rates based on actual experience. Ultimate rates after the third year are shown in the rate table. Select rates in the first three years are:

Year	Select Withdrawal Rates
1	3.00%
2	3.00%
3	3.00%

Summary of Actuarial Assumptions (Continued)

Disability	Age-related rates based on experience; see table of sample rates. All incidences are assumed to be duty-related.
Allowance for combined service annuity	Liabilities for former members are increased by 33.0% for vested members and 2.0% for non-vested members to account for the effect of some participants having eligibility for a Combined Service Annuity.
Administrative expenses	In the valuation year, equal to prior year administrative expenses expressed as percentage of prior year projected payroll. In each subsequent year, equal to the initial administrative expense percentage applied to payroll for the closed group.
Refund of contributions	Account balances accumulate interest until normal retirement date and are discounted back to the valuation date. All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.
Commencement of deferred benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 55.
Percentage married	85% of male and 60% of female active members are assumed to be married. Actual marital status is used for members in payment status.
Age of spouse	Males are assumed to be two years older than females. For members in payment status, actual spouse date of birth is used, if provided.
Eligible children	Retiring members are assumed to have no dependent children.
Form of payment	Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows: Males: 10% elect 25% Joint & Survivor option 20% elect 50% Joint & Survivor option 20% elect 75% Joint & Survivor option 35% elect 100% Joint & Survivor option Females: 20% elect 25% Joint & Survivor option 20% elect 50% Joint & Survivor option 10% elect 75% Joint & Survivor option 20% elect 100% Joint & Survivor option Remaining married members and unmarried members are assumed to elect the Straight Life option. Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a straight life annuity.
Eligibility testing	Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
Decrement operation	Withdrawal decrements do not operate during retirement eligibility. Decrements are assumed to occur mid-fiscal year.
Service credit accruals	It is assumed that members accrue one year of service credit per year.

Summary of Actuarial Assumptions (Continued)

Pay Increases	Pay increases are assumed to happen at the beginning of the fiscal year. This is equivalent to assuming that reported earnings are pensionable earnings for the year ending on the valuation date.
Unknown data for certain members	To prepare this report, GRS has used and relied on participant data supplied by the Fund. Although GRS has reviewed the data in accordance with Actuarial Standards of Practice No. 23, GRS has not verified or audited any of the data or information provided. In cases where submitted data was missing or incomplete, the following assumptions, based on average results for applicable members at the time of the last experience study, were applied: <u>Data for active members:</u> There were 24 members reported with a salary less than $100. We used prior year salary (16 members), if available; otherwise high five salary with a 10% load to account for salary increases (7 members). If neither prior year salary nor high five salary was available, we assumed a value of $60,000. Note former members of Minneapolis Fire are excluded from these salary counts as salary is not used to calculate the benefit. There were also 163 members reported without a gender. We assumed male gender. There was 1 member reported without a date of birth. We assumed a date of birth of July 1, 1985. <u>Data for terminated members:</u> We calculated benefits for these members using the reported Average Salary and credited service. If Average Salary was not reported (1 member), we assumed a value of $24,000. If credited service was not reported (16 members), we used elapsed time from hire date to termination date (8 members); if elapsed time was not available, we assumed nine years of service. If termination date was invalid or not reported (9 members), we assumed the termination date was equal to the hire date plus credited service, otherwise the valuation date. If the reported termination date occurs prior to the reported hire date, the two dates were swapped. There were 8 members reported without a gender; male was assumed. There were no members reported without a date of birth. <u>Data for retired members:</u> There were no members with missing or invalid dates of birth or benefit amounts. There were 21 members reported without a gender. We assumed retirees are male and beneficiaries are female.

Summary of Actuarial Assumptions (Continued)

Unknown data for certain members (Continued)	Data for retired members (Continued): Because PERA reclassifies disabled members as retirees once the member reaches Normal Retirement Age, we compare the members that PERA reports as retirees to our disabled group from the last valuation. If a member was disabled in the prior valuation, we reclassify that member as a disabled retiree in this year's valuation. We reclassified 239 retirees as disabled retirees in this valuation.
Changes in actuarial assumptions	The mortality projection scale was changed from MP-2018 to MP-2019.

Summary of Actuarial Assumptions (Continued)

	Percentage of Members Dying Each Year*					
	Healthy Post-Retirement Mortality		Healthy Pre-Retirement Mortality		Disability Mortality	
Age in 2020	Males	Females	Males	Females	Males	Females
20	0.04%	0.02%	0.05%	0.02%	0.04%	0.02%
25	0.07	0.04	0.06	0.02	0.07	0.04
30	0.11	0.08	0.06	0.03	0.11	0.08
35	0.17	0.14	0.08	0.04	0.17	0.14
40	0.24	0.20	0.08	0.05	0.24	0.20
45	0.30	0.23	0.11	0.07	0.30	0.23
50	0.40	0.28	0.17	0.11	0.40	0.28
55	0.56	0.39	0.29	0.18	0.56	0.39
60	0.80	0.60	0.50	0.28	0.80	0.60
65	1.14	0.87	0.89	0.40	1.14	0.87
70	1.67	1.31	1.44	0.64	1.67	1.31
75	2.65	2.14	2.39	1.10	2.65	2.14
80	4.49	3.68	4.06	1.94	4.49	3.68
85	7.88	6.60	8.00	5.16	7.88	6.60
90	13.87	11.78	14.62	11.36	13.87	11.78

* *Generally, mortality rates are expected to increase as age increases. These standard mortality rates have been adjusted slightly to prevent decreasing mortality rates. The adjustment has no material effect on results.*

	Withdrawal Rates After Third Year		Rates of Disability Retirement	
Age	Males	Females	Males	Females
20	3.00%	3.00%	0.11%	0.11%
25	2.60	2.60	0.13	0.13
30	2.10	2.10	0.16	0.16
35	1.60	1.60	0.19	0.19
40	1.25	1.25	0.29	0.29
45	1.25	1.25	0.54	0.54
50	0.00	0.00	1.04	1.04
55	0.00	0.00	2.03	2.03
60	0.00	0.00	0.00	0.00

Summary of Actuarial Assumptions (Concluded)

Age	Rates of Service Retirement
50	10.00%
51	7.00
52	7.00
53	10.00
54	10.00
55	25.00
56	22.50
57	22.50
58	22.50
59	20.00
60	22.50
61	25.00
62	30.00
63	30.00
64	30.00
65	50.00
66	50.00
67	50.00
68	50.00
69	50.00
70+	100.00

Salary Scale	
Year	Increase
1	12.25%
2	10.50%
3	8.75%
4	7.75%
5	6.25%
6	5.75%
7	5.25%
8	5.00%
9	4.75%
10	4.50%
11	4.25%
12	4.15%
13	4.05%
14	3.95%
15	3.85%
16	3.75%
17	3.75%
18	3.75%
19	3.75%
20	3.75%
21	3.65%
22	3.55%
23	3.45%
24	3.35%
25+	3.25%

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed long-term rate of return is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The *Single Discount Rate* (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%, the municipal bond rate is 2.45%; and **the resulting single discount rate is 7.50%**.

The tables in this section provide background for the development of the single discount rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

Single Discount Rate Development
Projection of Contributions
(Dollars in Thousands)

	Payroll			Projected Contributions					
Fiscal Year Ending	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Contributions on Future Payroll toward current UAL*	Contributions due from Mergers	Additional State Contributions**	Total Contributions
2020	$ 1,069,481	$ 0	$ 1,069,481						
2021	1,065,993	10,341	1,076,334	$ 125,787	$ 188,681	$ 906	$ 7,679	$ 18,000	$ 341,053
2022	1,058,033	53,282	1,111,315	124,848	187,272	4,667	7,679	18,000	342,466
2023	1,045,532	101,900	1,147,432	123,373	185,059	8,927	7,679	18,000	343,038
2024	1,029,792	154,932	1,184,724	121,515	182,273	13,572	7,679	18,000	343,039
2025	1,010,963	212,264	1,223,227	119,294	178,941	18,594	7,679	18,000	342,508
2026	989,392	273,590	1,262,982	116,748	175,122	23,966	7,679	18,000	341,515
2027	965,815	338,214	1,304,029	113,966	170,949	29,628	7,679	18,000	340,222
2028	940,499	405,911	1,346,410	110,979	166,468	35,558	7,679	18,000	338,684
2029	913,951	476,218	1,390,169	107,846	161,769	41,717	7,679	18,000	337,011
2030	886,027	549,322	1,435,349	104,551	156,827	48,121	7,679	18,000	335,178
2031	856,532	625,466	1,481,998	101,071	151,606	54,791	7,679	9,000	324,147
2032	825,796	704,367	1,530,163	97,444	146,166	61,703	7,679	9,000	321,992
2033	793,552	786,341	1,579,893	93,639	140,459	68,884	0	9,000	311,982
2034	759,896	871,344	1,631,240	89,668	134,502	76,330	0	9,000	309,500
2035	724,812	959,443	1,684,255	85,528	128,292	84,047	0	9,000	306,867
2036	688,202	1,050,791	1,738,993	81,208	121,812	92,049	0	0	295,069
2037	650,124	1,145,386	1,795,510	76,715	115,072	100,336	0	0	292,123
2038	610,680	1,243,185	1,853,865	72,060	108,090	108,903	0	0	289,053
2039	570,207	1,343,908	1,914,115	67,284	100,927	117,726	0	0	285,937
2040	528,905	1,447,419	1,976,324	62,411	93,616	126,794	0	0	282,821
2041	487,012	1,553,542	2,040,554	57,467	86,201	136,090	0	0	279,758
2042	444,751	1,662,121	2,106,872	52,481	78,721	145,602	0	0	276,804
2043	402,372	1,772,974	2,175,346	47,480	71,220	155,313	0	0	274,013
2044	360,494	1,885,551	2,246,045	42,538	63,807	165,174	0	0	271,519
2045	319,423	1,999,618	2,319,041	37,692	56,538	175,167	0	0	269,397
2046	279,255	2,115,155	2,394,410	32,952	49,428	185,288	0	0	267,668
2047	240,441	2,231,787	2,472,228	28,372	42,558	195,505	0	0	266,435
2048	203,634	2,348,942	2,552,576	24,029	36,043	205,767	0	0	265,839
2049	169,787	2,465,747	2,635,534	20,035	30,052	215,999	0	0	266,086
2050	139,330	2,581,859	2,721,189	16,441	24,661	226,171	0	0	267,273
2051	112,313	2,697,315	2,809,628	13,253	19,879	236,285	0	0	269,417
2052	88,898	2,812,043	2,900,941	10,490	15,735	246,335	0	0	272,560
2053	69,180	2,926,041	2,995,221	8,163	12,245	256,321	0	0	276,729
2054	53,044	3,039,522	3,092,566	6,259	9,389	266,262	0	0	281,910
2055	40,084	3,152,990	3,193,074	4,730	7,095	276,202	0	0	288,027
2056	29,833	3,267,016	3,296,849	3,520	5,280	286,191	0	0	294,991
2057	21,730	3,382,267	3,403,997	2,564	3,846	296,287	0	0	302,697
2058	15,366	3,499,261	3,514,627	1,813	2,720	306,535	0	0	311,068
2059	10,506	3,618,346	3,628,852	1,240	1,859	316,967	0	0	320,066
2060	6,916	3,739,874	3,746,790	816	1,224	327,613	0	0	329,653
2061	4,340	3,864,220	3,868,560	512	768	338,506	0	0	339,786
2062	2,565	3,991,724	3,994,289	303	454	349,675	0	0	350,432
2063	1,417	4,122,686	4,124,103	167	251	361,147	0	0	361,565
2064	732	4,257,404	4,258,136	86	130	372,949	0	0	373,165
2065	353	4,396,173	4,396,526	42	62	385,105	0	0	385,209
2066	158	4,539,255	4,539,413	19	28	397,639	0	0	397,686
2067	63	4,686,881	4,686,944	7	11	410,571	0	0	410,589
2068	21	4,839,249	4,839,270	2	4	423,918	0	0	423,924
2069	5	4,996,541	4,996,546	1	1	437,697	0	0	437,699
2070	1	5,158,933	5,158,934	0	-	451,923	0	0	451,923

* *Equal to contributions (29.50% of payroll for new employees) net of normal cost and expenses (20.74% of payroll).*

** *State contributions equal to $9 million are assumed to end after 10 years. Actual end date of this $9 million annual contribution will depend on the funding status of this plan and the MSRS State Patrol Plan. Additional state contributions of $9.0 million until 100% funded on an actuarial value of assets basis are assumed to stop after 15 years.*

Single Discount Rate Development
Projection of Contributions (Concluded)
(Dollars in Thousands)

	Payroll			Projected Contributions					
Fiscal Year Ending	Payroll for Current Employees	Payroll for New Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Contributions on Future Payroll toward current UAL*	Contributions due from Mergers	Additional State Contributions**	Total Contributions
2071	$ 0	$ 5,326,599	$ 5,326,599	$ 0	$ 0	$ 466,610	$ 0	$ 0	$ 466,610
2072	0	5,499,713	5,499,713	0	0	481,775	0	0	481,775
2073	0	5,678,454	5,678,454	0	0	497,433	0	0	497,433
2074	0	5,863,004	5,863,004	0	0	513,599	0	0	513,599
2075	0	6,053,551	6,053,551	0	0	530,291	0	0	530,291
2076	0	6,250,292	6,250,292	0	0	547,526	0	0	547,526
2077	0	6,453,426	6,453,426	0	0	565,320	0	0	565,320
2078	0	6,663,163	6,663,163	0	0	583,693	0	0	583,693
2079	0	6,879,715	6,879,715	0	0	602,663	0	0	602,663
2080	0	7,103,306	7,103,306	0	0	622,250	0	0	622,250
2081	0	7,334,164	7,334,164	0	0	642,473	0	0	642,473
2082	0	7,572,524	7,572,524	0	0	663,353	0	0	663,353
2083	0	7,818,631	7,818,631	0	0	684,912	0	0	684,912
2084	0	8,072,736	8,072,736	0	0	707,172	0	0	707,172
2085	0	8,335,100	8,335,100	0	0	730,155	0	0	730,155
2086	0	8,605,991	8,605,991	0	0	753,885	0	0	753,885
2087	0	8,885,686	8,885,686	0	0	778,386	0	0	778,386
2088	0	9,174,471	9,174,471	0	0	803,684	0	0	803,684
2089	0	9,472,641	9,472,641	0	0	829,803	0	0	829,803
2090	0	9,780,502	9,780,502	0	0	856,772	0	0	856,772
2091	0	10,098,368	10,098,368	0	0	884,617	0	0	884,617
2092	0	10,426,565	10,426,565	0	0	913,367	0	0	913,367
2093	0	10,765,428	10,765,428	0	0	943,052	0	0	943,052
2094	0	11,115,305	11,115,305	0	0	973,701	0	0	973,701
2095	0	11,476,552	11,476,552	0	0	1,005,346	0	0	1,005,346
2096	0	11,849,540	11,849,540	0	0	1,038,020	0	0	1,038,020
2097	0	12,234,650	12,234,650	0	0	1,071,755	0	0	1,071,755
2098	0	12,632,276	12,632,276	0	0	1,106,587	0	0	1,106,587
2099	0	13,042,825	13,042,825	0	0	1,142,552	0	0	1,142,552
2100	0	13,466,717	13,466,717	0	0	1,179,684	0	0	1,179,684
2101	0	13,904,386	13,904,386	0	0	1,218,024	0	0	1,218,024
2102	0	14,356,278	14,356,278	0	0	1,257,610	0	0	1,257,610
2103	0	14,822,857	14,822,857	0	0	1,298,482	0	0	1,298,482
2104	0	15,304,600	15,304,600	0	0	1,340,683	0	0	1,340,683
2105	0	15,801,999	15,801,999	0	0	1,384,255	0	0	1,384,255
2106	0	16,315,564	16,315,564	0	0	1,429,243	0	0	1,429,243
2107	0	16,845,820	16,845,820	0	0	1,475,694	0	0	1,475,694
2108	0	17,393,309	17,393,309	0	0	1,523,654	0	0	1,523,654
2109	0	17,958,592	17,958,592	0	0	1,573,173	0	0	1,573,173
2110	0	18,542,246	18,542,246	0	0	1,624,301	0	0	1,624,301
2111	0	19,144,869	19,144,869	0	0	1,677,091	0	0	1,677,091
2112	0	19,767,077	19,767,077	0	0	1,731,596	0	0	1,731,596
2113	0	20,409,507	20,409,507	0	0	1,787,873	0	0	1,787,873
2114	0	21,072,816	21,072,816	0	0	1,845,979	0	0	1,845,979
2115	0	21,757,683	21,757,683	0	0	1,905,973	0	0	1,905,973
2116	0	22,464,808	22,464,808	0	0	1,967,917	0	0	1,967,917
2117	0	23,194,914	23,194,914	0	0	2,031,874	0	0	2,031,874
2118	0	23,948,749	23,948,749	0	0	2,097,910	0	0	2,097,910
2119	0	24,727,083	24,727,083	0	0	2,166,092	0	0	2,166,092
2120	0	25,530,713	25,530,713	0	0	2,236,490	0	0	2,236,490

* *Equal to contributions (29.50% of payroll for new employees) net of normal cost and expenses (20.74% of payroll).*

** *State contributions equal to $9 million are assumed to end after 10 years. Actual end date of this $9 million annual contribution will depend on the funding status of this plan and the MSRS State Patrol Plan. Additional state contributions of $9.0 million until 100% funded on an actuarial value of assets basis are assumed to stop after 15 years.*

Single Discount Rate Development
Projection of Plan Fiduciary Net Position
(Dollars in Thousands)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2021	$ 8,973,460	$ 341,053	$ 595,469	$ 959	$ 663,606	$ 9,381,691
2022	9,381,691	342,466	619,507	952	693,390	9,797,088
2023	9,797,088	343,037	644,870	941	723,633	10,217,947
2024	10,217,947	343,040	671,748	927	754,208	10,642,520
2025	10,642,520	342,508	699,171	910	785,022	11,069,969
2026	11,069,969	341,516	727,783	890	815,992	11,498,804
2027	11,498,804	340,222	757,102	869	847,028	11,928,083
2028	11,928,083	338,684	786,312	846	878,092	12,357,701
2029	12,357,701	337,011	814,539	823	909,214	12,788,564
2030	12,788,564	335,178	843,725	797	940,387	13,219,607
2031	13,219,607	324,147	873,764	771	971,204	13,640,423
2032	13,640,423	321,991	903,467	743	1,001,593	14,059,797
2033	14,059,797	311,981	933,585	714	1,031,570	14,469,049
2034	14,469,049	309,499	963,821	684	1,061,060	14,875,103
2035	14,875,103	306,867	994,349	652	1,090,294	15,277,263
2036	15,277,263	295,069	1,025,475	619	1,118,877	15,665,115
2037	15,665,115	292,122	1,056,913	585	1,146,701	16,046,440
2038	16,046,440	289,053	1,088,611	550	1,174,021	16,420,353
2039	16,420,353	285,937	1,120,077	513	1,200,793	16,786,493
2040	16,786,493	282,821	1,151,758	476	1,226,973	17,144,053
2041	17,144,053	279,759	1,182,715	438	1,252,539	17,493,198
2042	17,493,198	276,803	1,212,911	400	1,277,505	17,834,195
2043	17,834,195	274,012	1,242,076	362	1,301,905	18,167,674
2044	18,167,674	271,520	1,269,967	324	1,325,799	18,494,702
2045	18,494,702	269,396	1,296,849	287	1,349,259	18,816,221
2046	18,816,221	267,668	1,322,646	251	1,372,361	19,133,353
2047	19,133,353	266,435	1,347,001	216	1,395,205	19,447,776
2048	19,447,776	265,839	1,369,290	183	1,417,945	19,762,087
2049	19,762,087	266,087	1,388,215	153	1,440,832	20,080,638
2050	20,080,638	267,273	1,403,342	125	1,464,210	20,408,654
2051	20,408,654	269,417	1,414,587	101	1,488,478	20,751,861
2052	20,751,861	272,560	1,421,358	80	1,514,085	21,117,068
2053	21,117,068	276,729	1,423,153	62	1,541,564	21,512,146
2054	21,512,146	281,910	1,419,970	48	1,571,503	21,945,541
2055	21,945,541	288,027	1,412,317	36	1,604,515	22,425,730
2056	22,425,730	294,991	1,400,692	27	1,641,214	22,961,216
2057	22,961,216	302,697	1,385,738	20	1,682,210	23,560,365
2058	23,560,365	311,068	1,367,801	14	1,728,116	24,231,734
2059	24,231,734	320,066	1,347,063	9	1,779,563	24,984,291
2060	24,984,291	329,653	1,323,731	6	1,837,217	25,827,424
2061	25,827,424	339,786	1,298,057	4	1,901,771	26,770,920
2062	26,770,920	350,432	1,270,269	2	1,973,948	27,825,029
2063	27,825,029	361,565	1,240,577	1	2,054,510	29,000,526
2064	29,000,526	373,165	1,209,199	1	2,144,255	30,308,746
2065	30,308,746	385,209	1,176,362	0	2,244,024	31,761,617
2066	31,761,617	397,685	1,142,260	0	2,354,704	33,371,746
2067	33,371,746	410,589	1,107,052	0	2,477,236	35,152,519
2068	35,152,519	423,924	1,070,856	0	2,612,617	37,118,204
2069	37,118,204	437,698	1,033,771	0	2,761,917	39,284,048
2070	39,284,048	451,923	995,886	0	2,926,274	41,666,359

For purposes of this projection, we assumed the current fixed rate contribution would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position (Concluded)
(Dollars in Thousands)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2071	$ 41,666,359	$ 466,610	$ 957,278	$ 0	$ 3,106,909	$ 44,282,600
2072	44,282,600	481,775	918,024	0	3,305,131	47,151,482
2073	47,151,482	497,433	878,194	0	3,522,341	50,293,062
2074	50,293,062	513,599	837,863	0	3,760,039	53,728,837
2075	53,728,837	530,291	797,109	0	4,019,838	57,481,857
2076	57,481,857	547,526	756,016	0	4,303,462	61,576,829
2077	61,576,829	565,320	714,676	0	4,612,763	66,040,236
2078	66,040,236	583,693	673,190	0	4,949,722	70,900,461
2079	70,900,461	602,663	631,668	0	5,316,467	76,187,923
2080	76,187,923	622,250	590,233	0	5,715,273	81,935,213
2081	81,935,213	642,473	549,020	0	6,148,582	88,177,248
2082	88,177,248	663,353	508,181	0	6,619,007	94,951,427
2083	94,951,427	684,912	467,885	0	7,129,348	102,297,802
2084	102,297,802	707,172	428,319	0	7,682,603	110,259,258
2085	110,259,258	730,155	389,684	0	8,281,981	118,881,710
2086	118,881,710	753,885	352,190	0	8,930,919	128,214,324
2087	128,214,324	778,386	316,047	0	9,633,099	138,309,762
2088	138,309,762	803,684	281,457	0	10,392,462	149,224,451
2089	149,224,451	829,803	248,606	0	11,213,235	161,018,883
2090	161,018,883	856,772	217,661	0	12,099,949	173,757,943
2091	173,757,943	884,617	188,762	0	13,057,468	187,511,266
2092	187,511,266	913,367	162,027	0	14,091,011	202,353,617
2093	202,353,617	943,052	137,538	0	15,206,182	218,365,313
2094	218,365,313	973,701	115,352	0	16,409,004	235,632,666
2095	235,632,666	1,005,346	95,490	0	17,705,953	254,248,475
2096	254,248,475	1,038,020	77,945	0	19,103,987	274,312,537
2097	274,312,537	1,071,755	62,670	0	20,610,597	295,932,219
2098	295,932,219	1,106,587	49,583	0	22,233,837	319,223,060
2099	319,223,060	1,142,552	38,561	0	23,982,381	344,309,432
2100	344,309,432	1,179,684	29,448	0	25,865,561	371,325,229
2101	371,325,229	1,218,024	22,061	0	27,893,430	400,414,622
2102	400,414,622	1,257,610	16,198	0	30,076,808	431,732,842
2103	431,732,842	1,298,482	11,645	0	32,427,347	465,447,026
2104	465,447,026	1,340,683	8,191	0	34,957,592	501,737,110
2105	501,737,110	1,384,255	5,635	0	37,681,047	540,796,777
2106	540,796,777	1,429,243	3,791	0	40,612,246	582,834,475
2107	582,834,475	1,475,694	2,495	0	43,766,832	628,074,506
2108	628,074,506	1,523,654	1,609	0	47,161,633	676,758,184
2109	676,758,184	1,573,173	1,019	0	50,814,754	729,145,092
2110	729,145,092	1,624,301	637	0	54,745,668	785,514,424
2111	785,514,424	1,677,091	395	0	58,975,321	846,166,441
2112	846,166,441	1,731,596	246	0	63,526,235	911,424,026
2113	911,424,026	1,787,873	154	0	68,422,629	981,634,374
2114	981,634,374	1,845,979	99	0	73,690,547	1,057,170,801
2115	1,057,170,801	1,905,973	66	0	79,357,989	1,138,434,697
2116	1,138,434,697	1,967,917	45	0	85,455,063	1,225,857,632
2117	1,225,857,632	2,031,874	32	0	92,014,139	1,319,903,613
2118	1,319,903,613	2,097,910	23	0	99,070,019	1,421,071,519
2119	1,421,071,519	2,166,092	17	0	106,660,123	1,529,897,717
2120	1,529,897,717	2,236,490	13	0	114,824,680	1,646,958,874

For purposes of this projection, we assumed the current fixed rate contribution would continue after the plan becomes fully funded. If we reflected a decrease in contribution rates due to full funding, future assets and contributions would be less than what is shown herein.

Single Discount Rate Development
Present Values of Projected Benefits
(Dollars in Thousands)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=(c)/(1+sdr)^(a-.5)
2021	$ 8,973,460	$ 595,469	$ 595,469	$ 0	$ 574,322	$ 0	$ 574,322
2022	9,381,690	619,507	619,507	0	555,819	0	555,819
2023	9,797,088	644,870	644,870	0	538,209	0	538,209
2024	10,217,947	671,748	671,748	0	521,527	0	521,527
2025	10,642,520	699,171	699,171	0	504,946	0	504,946
2026	11,069,969	727,783	727,783	0	488,940	0	488,940
2027	11,498,803	757,102	757,102	0	473,150	0	473,150
2028	11,928,082	786,312	786,312	0	457,122	0	457,122
2029	12,357,699	814,539	814,539	0	440,494	0	440,494
2030	12,788,563	843,725	843,725	0	424,444	0	424,444
2031	13,219,605	873,764	873,764	0	408,889	0	408,889
2032	13,640,421	903,467	903,467	0	393,292	0	393,292
2033	14,059,796	933,585	933,585	0	378,049	0	378,049
2034	14,469,047	963,821	963,821	0	363,063	0	363,063
2035	14,875,101	994,349	994,349	0	348,431	0	348,431
2036	15,277,260	1,025,475	1,025,475	0	334,267	0	334,267
2037	15,665,111	1,056,913	1,056,913	0	320,479	0	320,479
2038	16,046,437	1,088,611	1,088,611	0	307,061	0	307,061
2039	16,420,351	1,120,077	1,120,077	0	293,894	0	293,894
2040	16,786,491	1,151,758	1,151,758	0	281,123	0	281,123
2041	17,144,051	1,182,715	1,182,715	0	268,539	0	268,539
2042	17,493,195	1,212,911	1,212,911	0	256,181	0	256,181
2043	17,834,193	1,242,076	1,242,076	0	244,038	0	244,038
2044	18,167,673	1,269,967	1,269,967	0	232,110	0	232,110
2045	18,494,700	1,296,849	1,296,849	0	220,486	0	220,486
2046	18,816,219	1,322,646	1,322,646	0	209,184	0	209,184
2047	19,133,351	1,347,001	1,347,001	0	198,173	0	198,173
2048	19,447,773	1,369,290	1,369,290	0	187,397	0	187,397
2049	19,762,083	1,388,215	1,388,215	0	176,732	0	176,732
2050	20,080,633	1,403,342	1,403,342	0	166,193	0	166,193
2051	20,408,650	1,414,587	1,414,587	0	155,837	0	155,837
2052	20,751,857	1,421,358	1,421,358	0	145,659	0	145,659
2053	21,117,064	1,423,153	1,423,153	0	135,668	0	135,668
2054	21,512,141	1,419,970	1,419,970	0	125,920	0	125,920
2055	21,945,536	1,412,317	1,412,317	0	116,504	0	116,504
2056	22,425,725	1,400,692	1,400,692	0	107,484	0	107,484
2057	22,961,212	1,385,738	1,385,738	0	98,917	0	98,917
2058	23,560,362	1,367,801	1,367,801	0	90,825	0	90,825
2059	24,231,731	1,347,063	1,347,063	0	83,207	0	83,207
2060	24,984,289	1,323,731	1,323,731	0	76,062	0	76,062
2061	25,827,422	1,298,057	1,298,057	0	69,383	0	69,383
2062	26,770,918	1,270,269	1,270,269	0	63,160	0	63,160
2063	27,825,027	1,240,577	1,240,577	0	57,380	0	57,380
2064	29,000,524	1,209,199	1,209,199	0	52,027	0	52,027
2065	30,308,744	1,176,362	1,176,362	0	47,083	0	47,083
2066	31,761,615	1,142,260	1,142,260	0	42,528	0	42,528
2067	33,371,744	1,107,052	1,107,052	0	38,342	0	38,342
2068	35,152,517	1,070,856	1,070,856	0	34,501	0	34,501
2069	37,118,203	1,033,771	1,033,771	0	30,982	0	30,982
2070	39,284,047	995,886	995,886	0	27,765	0	27,765

Single Discount Rate Development
Present Values of Projected Benefits (Concluded)
(Dollars in Thousands)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=(c)/(1+sdr)^(a-.5)
2071	$ 41,666,358	$ 957,278	$ 957,278	$ 0	$ 24,826	$ 0	$ 24,826
2072	44,282,599	918,024	918,024	0	22,147	0	22,147
2073	47,151,481	878,194	878,194	0	19,708	0	19,708
2074	50,293,061	837,863	837,863	0	17,491	0	17,491
2075	53,728,836	797,109	797,109	0	15,479	0	15,479
2076	57,481,856	756,016	756,016	0	13,657	0	13,657
2077	61,576,828	714,676	714,676	0	12,010	0	12,010
2078	66,040,236	673,190	673,190	0	10,523	0	10,523
2079	70,900,461	631,668	631,668	0	9,185	0	9,185
2080	76,187,923	590,233	590,233	0	7,984	0	7,984
2081	81,935,212	549,020	549,020	0	6,908	0	6,908
2082	88,177,247	508,181	508,181	0	5,948	0	5,948
2083	94,951,426	467,885	467,885	0	5,095	0	5,095
2084	102,297,801	428,319	428,319	0	4,338	0	4,338
2085	110,259,257	389,684	389,684	0	3,672	0	3,672
2086	118,881,709	352,190	352,190	0	3,087	0	3,087
2087	128,214,323	316,047	316,047	0	2,577	0	2,577
2088	138,309,761	281,457	281,457	0	2,135	0	2,135
2089	149,224,449	248,606	248,606	0	1,754	0	1,754
2090	161,018,881	217,661	217,661	0	1,429	0	1,429
2091	173,757,941	188,762	188,762	0	1,152	0	1,152
2092	187,511,264	162,027	162,027	0	920	0	920
2093	202,353,616	137,538	137,538	0	727	0	727
2094	218,365,311	115,352	115,352	0	567	0	567
2095	235,632,664	95,490	95,490	0	437	0	437
2096	254,248,473	77,945	77,945	0	331	0	331
2097	274,312,535	62,670	62,670	0	248	0	248
2098	295,932,217	49,583	49,583	0	182	0	182
2099	319,223,059	38,561	38,561	0	132	0	132
2100	344,309,430	29,448	29,448	0	94	0	94
2101	371,325,228	22,061	22,061	0	65	0	65
2102	400,414,620	16,198	16,198	0	45	0	45
2103	431,732,841	11,645	11,645	0	30	0	30
2104	465,447,025	8,191	8,191	0	20	0	20
2105	501,737,109	5,635	5,635	0	13	0	13
2106	540,796,775	3,791	3,791	0	8	0	8
2107	582,834,473	2,495	2,495	0	5	0	5
2108	628,074,504	1,609	1,609	0	3	0	3
2109	676,758,181	1,019	1,019	0	2	0	2
2110	729,145,088	637	637	0	1	0	1
2111	785,514,420	395	395	0	1	0	1
2112	846,166,436	246	246	0	0	0	0
2113	911,424,021	154	154	0	0	0	0
2114	981,634,368	99	99	0	0	0	0
2115	1,057,170,795	66	66	0	0	0	0
2116	1,138,434,691	45	45	0	0	0	0
2117	1,225,857,626	32	32	0	0	0	0
2118	1,319,903,608	23	23	0	0	0	0
2119	1,421,071,514	17	17	0	0	0	0
2120	1,529,897,712	13	13	0	0	0	0
				Totals	$ 12,360,807	$ 0	$ 12,360,807

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future benefit payments at predetermined rates of interest to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically, the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

Glossary of Terms

Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Amortization Method	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll	The payroll of covered employees, which is typically only the pensionable pay (meets the statutory salary definition) and does not include pay above any pay cap.
Deferred Inflows and Outflows of Resources	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
Discount Rate or Single Discount Rate	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: 1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.
Entry Age Actuarial Cost Method or Entry Age Normal (EAN)	The EAN is a funding method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit age(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

Glossary of Terms

GASB	The Governmental Accounting Standards Board is an organization that exists with authority to promulgate accounting standards for state and local governmental entities.
Fiduciary Net Position	The fiduciary net position is the value of the net assets of the trust restricted for pension benefits.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contribution Entities	Non-employer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB Accounting Statements No. 67 and No. 68 plan members are not considered non-employer contribution entities.
Normal Cost	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.
Other Postemployment Benefits (OPEB)	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

Glossary of Terms

Total Pension Expense The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:

1. Service Cost
2. Interest on the Total Pension Liability
3. Current-Period Changes in Benefit Terms
4. Employee Contributions
5. Projected Earnings on Plan Investments
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to the difference between expected and actual in measurement of the Total Pension Liability
9. Recognition of Outflows (Inflow) of Resources due to Assumption Changes
10. Recognition of Outflow (Inflow) of Resources due to the difference between projected and actual earnings on pension plan investments

Total Pension Liability (TPL) The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

Unfunded Actuarial Accrued Liability (UAAL) The UAAL is the difference between actuarial accrued liability and valuation assets.

Valuation Assets The valuation assets are the plan fiduciary net position used in determining the net position liability of the plan. For purposes of the GASB Statement No. 67, the asset valuation method is equal to the market value of assets.